

DISCUSSION OF THE CLAIMS

Claims 1-6, 8-9, 11-12, 14-29, 32-37, and 39-51 are pending in the present application.

No new matter is added.

REMARKS

Applicants thank the Office for withdrawing the rejection of the previously presented claims over Girotti alone. The Office now rejects the claims as obvious over Girotti (EP 0847802) in combination with Grootjans (US 5,750,814).

Present Claim 1 is drawn to a catalytic composition that includes a zeolite and an inorganic binder. The zeolite is “zeolite Y”. The Office concedes that Girotti teaches that beta zeolite (i.e., not zeolite Y) is the catalyst of choice for the alkylation of aromatics. Nevertheless, the Office alleges that one of ordinary skill in the art would be motivated to modify Girotti to form an alkylation/transalkylation catalyst that includes zeolite Y because Grootjans describes a catalytic composition that includes zeolite Y. The Office characterizes the cited art as follows:

Grootjans discloses an alkylation process similar to Girotti using similar feedstocks, catalyst and operating conditions (See abstract; Examples 1 and 2).

See page 4 of the August 28 Office Action.

Applicants submit that the Office’s characterization of cited art is not correct. The Grootjans process is substantially different from both the process described in Girotti and the presently claimed process.

The Grootjans disclosure is directed to toward an “alkylation” process (see the title of the Grootjans patent). In contrast, the processes of the present claims are transalkylation processes. A transalkylation process is different from an alkylation process. Transalkylation involves *transferring* alkyl groups between aromatic groups. Alkylation on the other hand involves *adding* a new alkyl group to an aromatic moiety. The process of the Grootjans patent is therefore different from the Girotti processes and the process described in the present claims.

Not only are the respective processes different, the feedstocks used in the respective processes are different. The Grootjans process includes contacting a C₅-C₇ olefins feedstock stream with an aromatic hydrocarbon feedstock stream (see the Abstract of Grootjans). Such feedstock stream mixtures contain a variety of different olefinic and aromatic materials and are obtained as refined or bottoms fractions of distillation processes (see column 2, lines 32-39 of Grootjans). Girotti, on the other hand, describes a process in which a relatively pure substrate material is subjected to transalkylation. Purity in the aromatic feedstock is necessary so that the transalkylation is controllable (see the examples of Girotti).

The product streams derived from the Grootjans and Girotti processes have distinctly different performance characteristics and uses. The product of the alkylation process of Grootjans is useful as a fuel additive that improves the octane (cetane) number of fuels such as gasoline. The product of the Girotti transalkylation process is useful for making other feedstock streams for further industrial processing such as ethylbenzene for use in making styrene and polystyrene plastic.

The aforementioned product streams are not interchangeable and have entirely different functionality. It is thus incorrect for the Office to allege that the process of Girotti and Grootjans are “similar” with respect to feedstocks, catalysts, and/or products.

The respective catalysts are likewise different. As already mentioned in earlier communications with the Office, the Girotti publication describes a process which favors the inclusion of a beta zeolite having certain pore volume and porosity characteristics. In Girotti, beta zeolite is favored over all types of other zeolites.

Grootjans discloses a process in which zeolites are interchangeable. Grootjans like Girotti discloses that beta zeolite is a preferred zeolite. Further, Grootjans describes examples each of which uses a beta zeolite. No other zeolite is described as an actual reduction to practice in the Grootjans disclosure.

The Office goes on to assert that Grootjans teaches that zeolite Y and beta zeolite are functionally similar and that any form of alumina is an effective binder. Applicants submit that Grootjans is contradictory to the Office's assertion because both the Grootjans and Girotti publications disclose that beta zeolite is better than any other zeolitic material. The Office's assertion that the cited art somehow discloses or suggests that zeolite Y and beta zeolite are interchangeable or equally effective is not supportable as a matter of fact.

As mentioned above, the functionality of the Grootjans and Girotti catalysts are different. The Office's assertion that the cited art somehow indicates that zeolite Y and zeolite beta are functionally equivalent or similar is further not supportable as a matter of fact.

This is likewise the case with the binder. It is immaterial that the cited art discloses different types of binders. What is important is that cited art does not disclose that such binders are "equally effective" as alleged by the Office. The Office supports the rejection with no more than hand waving and general assertions that miss the mark with respect to the particular zeolite and binder conditions recited in the present claims. Even if the Office's assertion in this regard was correct (Applicants make no such admission), it entirely ignores the effect of porosity and pore diameter on the catalyst's effectiveness and/or functionality.

The differences in the alkylation/transalkylation functionality of the catalysts of the cited references is especially relevant to claims such as present Claim 18 which is drawn to "**a process** for the transalkylation of aromatic hydrocarbons". As explained above, alkylation and transalkylation are different processes requiring different feedstock streams.

The examples of the as-filed disclosure and the examples of the Girotti Declaration submitted in the present case on August 5, 2009 bear out Applicants' rebuttal of the rejection of the claims as obvious. As explained in the Supplemental Amendment filed in the present application on August 5, 2009, comparative example Z of the Girotti Declaration

demonstrates the consequence of utilizing a catalyst having a porosity that lies outside the porosity requirements of the present claims. Comparative example Z described in paragraph no. 6 of the Girotti Declaration is used under the same conditions as Inventive Example 2 of the as-filed disclosure. Comparative example Z is unable to provide meaningful transalkylation under conditions that are equivalent to the conditions used for carrying out transalkylation with the inventive catalytic composition.

The evidence of record refutes the Office's assertion that the processes and/or catalysts of Girotti are similar to those of the present claims. If the catalysts were similar and/or had similar functionality one would expect similar performance and/or utility of the respective products. Applicants have shown, however, that the Girotti catalyst Z fails to provide the transalkylation performance of the inventive catalytic compositions.

Only after forcing conditions are applied does the Girotti catalyst Z provide any meaningful transalkylation performance. Such forcing conditions require a temperature that is 60°C greater than the conditions used for the inventive catalytic composition.

Applicants thus submit that the facts of the case weigh against the Office's assertion of obviousness. Where the Office has put forth vague allegations of obviousness, Applicants have rebutted such allegations with factual evidence. Applicants submit the factual evidence is sufficient to rebut the Office's assertion of obviousness and is otherwise probative of the non-obviousness of the presently claimed invention.

For the reasons discussed above in detail, Applicants submit that withdrawal of the rejection and the allowance of all now-pending claims is appropriate.

Respectfully submitted,

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